

**PCT**WORLD INTELLECTUAL PROPERTY ORGANIZATION  
International Bureau

## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<b>(51) International Patent Classification <sup>6</sup> :</b> <b>B32B 27/00</b>	<b>A1</b>	<b>(11) International Publication Number:</b> <b>WO 96/09928</b> <b>(43) International Publication Date:</b> 4 April 1996 (04.04.96)
<b>(21) International Application Number:</b> PCT/NL95/00318 <b>(22) International Filing Date:</b> 22 September 1995 (22.09.95) <b>(30) Priority Data:</b> 9401566 26 September 1994 (26.09.94) NL 9401885 11 November 1994 (11.11.94) NL <b>(71) Applicant (for all designated States except US):</b> SALLMET-ALL B.V. [NL/NL]; Kanaaldijk O.Z. 3, NL-8102 HJ Raalte (NL). <b>(72) Inventor; and</b> <b>(75) Inventor/Applicant (for US only):</b> REINDERS, Johannes, Antonius, Maria [NL/NL]; Oude Warkenseweg 1, NL-7231 PE Wansveld (NL). <b>(74) Agent:</b> SCHUMANN, B., H., J.; Arnold & Siedsma, Sweelinkplein 1, NL-2517 GK The Hague (NL).		<b>(81) Designated States:</b> AM, AT, AU, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LT, LU, LV, MD, MG, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TT, UA, UG, US, UZ, VN, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG), ARIPO patent (KE, MW, SD, SZ, UG).  <b>Published</b> <i>With international search report.</i>
<b>(54) Title:</b> COVER FOIL WITH HEAT-ACTIVATED LAYER		
<b>(57) Abstract</b> <p>The invention provides a light-transmitting cover foil intended to be arranged adheringly to a surface, for instance the surface of a carrier plate, optionally bearing information such as letters, numbers, images or the like, which foil consists of a laminate comprising: a first layer plastically deformable only at a relatively high first temperature, for instance in the range of 120 °C - 200 °C and comprising for instance polycarbonate, PMMA, PVC, ABS, PP, PE, which first layer is provided before, during or after joining together to the other layers with a structure, for instance a texture and/or pattern pressed out of its main surface by exerting pressure and increasing temperature to at least the said first temperature, for instance by applying a heated profile roller; a second layer adhered thereto consisting of a dimensionally stable carrier layer comprising for instance polycarbonate, PMMA, PVC, polyester/PET, ABS; and a third layer adhered thereto which is meltable and thus thermally-activated at a relatively low second temperature, for instance in the range of 50 °C - 90 °C and which consists of a hot-melt layer or glue layer, comprising for instance EVA, EEA, EBA, EMA, GBA or other low-melting plastics including polyolefins and copolymer esters, polyacetate esters, softened PVCs; which said layers are mutually connected by adhesive agents, for instance by making use of coextrusion.</p>		

**FOR THE PURPOSES OF INFORMATION ONLY**

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AT	Austria	GB	United Kingdom	MR	Mauritania
AU	Australia	GE	Georgia	MW	Malawi
BB	Barbados	GN	Guinea	NE	Niger
BE	Belgium	GR	Greece	NL	Netherlands
BF	Burkina Faso	HU	Hungary	NO	Norway
BG	Bulgaria	IE	Ireland	NZ	New Zealand
BJ	Benin	IT	Italy	PL	Poland
BR	Brazil	JP	Japan	PT	Portugal
BY	Belarus	KE	Kenya	RO	Romania
CA	Canada	KG	Kyrgyzstan	RU	Russian Federation
CF	Central African Republic	KP	Democratic People's Republic of Korea	SD	Sudan
CG	Congo	KR	Republic of Korea	SE	Sweden
CH	Switzerland	KZ	Kazakhstan	SI	Slovenia
CI	Côte d'Ivoire	LI	Liechtenstein	SK	Slovakia
CM	Cameroon	LK	Sri Lanka	SN	Senegal
CN	China	LU	Luxembourg	TD	Chad
CS	Czechoslovakia	LV	Latvia	TG	Togo
CZ	Czech Republic	MC	Monaco	TJ	Tajikistan
DE	Germany	MD	Republic of Moldova	TT	Trinidad and Tobago
DK	Denmark	MG	Madagascar	UA	Ukraine
ES	Spain	ML	Mali	US	United States of America
FI	Finland	MN	Mongolia	UZ	Uzbekistan
FR	France			VN	Viet Nam
GA	Gabon				

**COVER FOIL WITH HEAT-ACTIVATED LAYER**

The invention relates to a light-transmitting, for instance transparent, cover foil intended for adhesion to an optionally information-carrying surface.

Such a cover foil is known. This known foil  
5 comprises a first layer of polyester and a pressure-sensitive or heat-activated glue layer connected thereto.

It is an object of the invention to embody a cover foil such that it can offer a combination of two aspects, that is, a first layer provided with a structure  
10 and a heat-activated glue layer. The existing structure may not be adversely affected when the glue layer is activated.

The described, known foil does not meet these requirements.

15 It is therefore an object of the invention to provide a light-transmitting cover foil which has a structure, for instance a texture and/or a pattern pressed out of its main surface, while provisions are also present to adhere the foil to a surface for covering  
20 using simple means and without adversely affecting the existing structure.

In respect of the above the invention provides a light-transmitting cover foil intended to be arranged adheringly to a surface, for instance the surface of a  
25 carrier plate, optionally bearing information such as letters, numbers, images or the like, which foil consists of a laminate comprising of:

a first layer plastically deformable only at a relatively high first temperature, for instance in the  
30 range of 120°C - 200°C and comprising for instance polycarbonate, PMMA, PVC, ABS, PP, PE, which first layer is provided before, during or after joining together to the other layers with a structure, for instance a texture and/or a pattern pressed out of its main surface by

exerting pressure and increasing temperature to at least the said first temperature, for instance by applying a heated profile roller;

a second layer adhered thereto consisting of a dimensionally stable carrier layer comprising for instance polycarbonate, PMMA, PVC, polyester/PET, ABS; and

a third layer adhered thereto which is meltable and thus heat-activated at a relatively low second temperature, for instance in the range of 50°C - 90°C and which consists of a hot-melt layer or glue layer, comprising for instance EVA, EEA, EBA, EMA, GBA or other low-melting plastics including polyolefins and copolymer esters, polyacetate esters, softened PVCs;

which said layers are mutually connected by adhesive agents, for instance by making use of co-extrusion.

Attention is drawn to the fact that polyester/PET is excluded as material for the first layer.

The invention is based on the insight that the structuring of the first layer can take place in advance and that due to the relatively high softening temperature of the applied material, in the order of for instance 180°C, when the glue layer is activated, for instance at a temperature of 70°C, the first layer including its said structure is not affected, while the glue layer is nevertheless fully activated so that the cover foil can be adhered effectively to the surface for covering.

The second layer consisting for example of polyester is to a large degree non-stretch and non-shrink. This layer also makes possible heating of a strip of cover foil in a laminating machine without this resulting in a softening of the total cover foil such as to limit the ease of handling thereof.

A specific embodiment has the special feature that the first layer and the second layer consist of one integral, chemically substantially homogeneous layer. Attention is once again drawn to the fact that polyester

is excluded as material for the first layer. In this case both integrated layers must therefore consist of a material from which polyester/PET is excluded.

A specific embodiment has the special feature  
5 that the adhesive agents comprise an adhesion-enhancing activation of at least the adhesive surface, for instance a corona treatment, particularly in the case of polyester and polypropylene. Other related treatments such as an ion bombardment may also be appropriate.

10 The adhesion between the diverse layers can in principle take place in any suitable manner. A specific embodiment is that in which the adhesive agents comprise an adhesive layer such as a layer of primer adhering to both the surfaces for adhesion.

15 All suitable means can be considered to provide the first layer with a structure. A specific embodiment is that in which the first layer is provided in advance with a structure by a mechanical, chemical and/or physical treatment or with a covering layer forming a  
20 structure, for instance by vapour-deposition, sputtering or the like.

In general the softening temperature of the first and third layer will have to differ substantially, for instance in the order of at least 30°C. It is in any  
25 case necessary to avoid the structure of the first layer being adversely affected when the cover foil is heat to stick it onto a surface for covering.

In order to ensure a good UV-stability the laminate can comprise a UV-blocking layer, for instance a  
30 lacquer layer, present at a suitable position.

\*\*\*\*\*

**CLAIMS**

1. Light-transmitting cover foil intended to be arranged adheringly to a surface, for instance the surface of a carrier plate, optionally bearing information such as letters, numbers, images or the like, which foil  
5 consists of a laminate comprising of:

a first layer plastically deformable only at a relatively high first temperature, for instance in the range of 120°C - 200°C and comprising for instance polycarbonate, PMMA, PVC, ABS, PP, PE, which first layer is  
10 provided before, during or after joining together to the other layers with a structure, for instance a texture and/or pattern pressed out of its main surface by exerting pressure and increasing temperature to at least the said first temperature, for instance by applying a heated  
15 profile roller;

a second layer adhered thereto consisting of a dimensionally stable carrier layer comprising for instance polycarbonate, PMMA, PVC, polyester/PET, ABS; and

a third layer adhered thereto which is meltable  
20 and thus heat-activated at a relatively low second temperature, for instance in the range of 50°C - 90°C and which consists of a hot-melt layer or glue layer, comprising for instance EVA, EEA, EBA, EMA, GBA or other low-melting plastics including polyolefins and copolymer  
25 esters, polyacetate esters, softened PVCs;

which said layers are mutually connected by adhesive agents, for instance by making use of co-extrusion.

2. Cover foil as claimed in claim 1, wherein  
30 the first layer and the second layer consist of one integral, chemically substantially homogeneous layer.

3. Cover foil as claimed in claim 1, wherein the adhesive agents comprise an adhesion-enhancing activation of at least the adhesive surface, for instance

a corona treatment, particularly in the case of polyester and polypropylene.

4. Cover foil as claimed in claim 1, wherein the adhesive agents comprise an adhesive layer such as a  
5 layer of primer adhering to both the surfaces for adhesion.

5. Cover foil as claimed in claim 1, wherein the first layer is provided in advance with a structure by a mechanical, chemical and/or physical treatment or  
10 with a covering layer forming a structure, for instance by vapour-deposition, sputtering or the like.

6. Cover foil as claimed in claim 1, wherein the laminate comprises a UV-blocking layer, for instance a lacquer layer.

\*\*\*\*\*

# INTERNATIONAL SEARCH REPORT

International Application No  
**PCT/NL 95/00318**

## A. CLASSIFICATION OF SUBJECT MATTER

**IPC 6 B32B27/00**

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

**IPC 6 B32B**

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US,A,4 063 641 (KUEHN,MITTMAN) 20 December 1977 see column 6, line 7 - column 6, line 33 ---	1
A	EP,A,0 425 820 (KURARAY CO. LTD.) 8 May 1991 ---	1
A	FR,A,2 450 853 (ASAHI KASEI KOGYO KABUSHIKI KAISHA) 3 October 1980 ---	1
A	EP,A,0 374 632 (WOLFF WALSRÖDE AG) 27 June 1990 ---	1
A	EP,A,0 358 445 (TONEN SEKIYUKAGAKU) 14 March 1990 ---	1
A	EP,A,0 207 440 (KURARAY CO. LTD.) 7 January 1987 -----	1

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

### \* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

**22 November 1995**

Date of mailing of the international search report

**28.11.95**

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax: (+31-70) 340-3016

Authorized officer

**Roberts, P**



# INTERNATIONAL SEARCH REPORT

information on patent family members

International Application No

PCT/NL 95/00318

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US-A-4063641	20-12-77	NONE	
EP-A-0425820	08-05-91	AU-B- 630743	05-11-92
		AU-B- 6365590	11-04-91
		DE-D- 69015773	16-02-95
		DE-T- 69015773	11-05-95
		JP-A- 3192140	22-08-91
		US-A- 5082743	21-01-92
FR-A-2450853	03-10-80	JP-A- 55118943	12-09-80
		JP-C- 1395906	24-08-87
		JP-A- 55128458	04-10-80
		JP-B- 62005064	03-02-87
		JP-C- 1428159	25-02-88
		JP-A- 55137964	28-10-80
		JP-B- 62035909	04-08-87
		JP-C- 1372006	07-04-87
		JP-A- 56005761	21-01-81
		JP-B- 61041307	13-09-86
		JP-C- 1492885	20-04-89
		JP-A- 56008257	28-01-81
		JP-B- 63032622	30-06-88
		BE-A- 882117	01-07-80
		CA-A- 1157990	29-11-83
		DE-A- 3008749	11-09-80
		GB-A, B 2048903	17-12-80
		NL-A, C 8001397	10-09-80
		US-A- 4410595	18-10-83
EP-A-0374632	27-06-90	DE-A- 3842948	28-06-90
		CA-A- 2005968	21-06-90
		JP-A- 2225043	07-09-90
		NO-B- 174769	28-03-94
		US-A- 5126198	30-06-92
EP-A-0358445	14-03-90	JP-A- 2070433	09-03-90
		US-A- 5075152	24-12-91
EP-A-0207440	07-01-87	JP-C- 1768257	11-06-93
		JP-B- 4058382	17-09-92

# INTERNATIONAL SEARCH REPORT

information on patent family members

Int. Application No

PCT/NL 95/00318

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP-A-0207440		JP-A- 62011644	20-01-87
		AU-B- 5890386	08-01-87
		CA-A- 1240251	09-08-88
		US-A- 4713296	15-12-87
-----			